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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/776,204

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Shigenori Satou

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EXAMINER

NGUYEN, TUAN N

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/776,204	<b>Applicant(s)</b> SATO, SHIGENORI	
	<b>Examiner</b> Tuan N. Nguyen	<b>Art Unit</b> 2828	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/27/06; 10/14/04. 2/12/04.</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### Election/Restriction

1. Applicant's election of figure 11, citing claim 1 is generic to all species, with traverse. Upon further consideration, examiner hereby withdraws the restriction requirement, put forth in the action mailed 02/27/2006.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of 35 U.S.C. 102(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-7, 9-18, 20-29, 31-34 are rejected under 35 U.S.C. 102(a) as being unpatentable over Nasu et al. (US 6667997).

With respect to claim 1, Nasu '997. shows and discloses a unit for stabilizing a wavelength of a light (ABSTRACT; Fig 1) , comprising: (a) a first light-receiver receiving a part of laser beams irradiated from a semiconductor laser (*Fig 1: 5 a first photodiode PD receive a part of semi conductor #2*); (b) a wavelength-filter receiving a part of said laser beams, and having a transmittance varying in accordance with a wavelength of the received laser beams (*Fig 1: 7 optical filter having a transmittance varying in accordance with a wavelength of the received laser beams*); and (c) a second light-receiver receiving laser beams having passed through said wavelength-filter (*Fig 1: 6 a second photodiode receive a part of semi conductor #2*), wherein said first light-receiver has a first edge, and said second light-receiver has a second edge located in the vicinity of said first edge, and said first edge has a first linear portion and said second

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edge has a second linear portion extending in parallel with said first linear portion (*Fig 1,8b: 5, 6 the first/second PD have a first/second linear portion/edge, and locate in parallel.*)

With respect to claims 2, 9, 20, 31 Nasu '997 shows wherein each of said first and second light-receivers is a part of a photodetector mounted on a, said first light-receiver having a first light-receiving surface coextensive in a plane perpendicular to said substrate, said second light-receiver having a second light-receiving surface coextensive in said plane substrate (*Fig 1, 195,6,8 where first and second PD mounted on substrate, and light receiving surface is coextensive in substrate plane*).

With respect to claims 3,4, 5,21-22, 32,33 Nasu '997 shows wherein said first and second linear portions extend in parallel and perpendicular with said substrate (*Fig 6a: 5,6,8 first/second linear portions parallel/perpendicular with substrate "Fig 2: 19, 15"*) and the light-receivers is a part of a photodetector (Col 5: 15-20 photodiodes).

With respect to claim 6, Nasu '997 shows and discloses a unit for stabilizing a wavelength of a light, (ABSTRACT; Fig 1) comprising: (a) a device collimating laser beams irradiated from a semiconductor laser, into parallel beams (*Fig 1: 13 collimating lens collimating beam from semi. Laser #2 into parallel beams entering prism 4a/4b*); (b) a first light-receiver receiving a part of said parallel beams (*Fig 1: 6 first PD receive a part of parallel beam*); (c) a wavelength-filter receiving a part of said parallel beams, and having a transmittance varying in accordance with a wavelength of the received laser beams (*Fig 1: 7 optical filter #7 receiving a part of parallel beam*); and (d) a second

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light-receiver receiving said parallel beams having passed through said wavelength-filter (*Fig 1: 5 second PD receive a part of parallel beam through wavelength-filter*), wherein said first light-receiver has a first edge, and said second light-receiver has a second edge located in the vicinity of said first edge, and said first edge has a first linear portion and said second edge has a second linear portion extending in parallel with said first linear portion (*Fig 1,8b: 5, 6 the first/second PD have a first/second linear portion/edge, and locate in parallel.*)

With respect to claims 7,18, 29 Nasu '997 shows wherein said device is comprised of a lens (*Fig 1: 13 a lens*).

With respect to claims 10-12, 23 (*Fig 1: 5,6,8*) where first/second linear portions extended parallel with said substrate, where the light-receivers are one or more photodetectors (*Col 5: 15-25*).

With respect to claim 13, Nasu '997 shows a module for stabilizing a wavelength of an optical signal in optical communication, (ABSTRACT; *Fig 1*) comprising: (a) a semiconductor laser forwardly irradiating signal laser beams; (*Fig 1: 2, 10, 22 a semiconductor laser radiate beam forward*) (b) a temperature controller which controls a temperature of said semiconductor laser; (*Fig 2: 21, 16*)(*Col 6: 1-15 peltier temperature controller control semi laser*) and (c) a unit which receives laser beams which said semiconductor laser backwardly irradiates, and stabilizes a wavelength of the received laser beams (*Fig 1: 4a/b, 8, 8a a unit receives laser beams backward and stabilizes the laser beams*), wherein said unit is comprised of: (c1) a first light-receiver receiving a part

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of laser beams irradiated from a semiconductor laser (*Fig 1: 6 1<sup>st</sup> PD receiving a part of laser beam from semi. laser*); (c2) a wavelength-filter receiving a part of said laser beams, and having a transmittance varying in accordance with a wavelength of the received laser beams(*Fig 1: 7 wavelength filter receiving part of laser*); and (c3) a second light-receiver receiving laser beams having passed through said wavelength-filter (*Fig 1: 5 2<sup>nd</sup> PD receiving a part of laser beam from semi. laser passed through filter*), wherein said first light-receiver has a first edge, and said second light-receiver has a second edge located in the vicinity of said first edge, and said first edge has a first linear portion and said second edge has a second linear portion extending in parallel with said first linear portion (*Fig 1,8b: 5, 6 the first/second PD have a first/second linear portion/edge, and locate in parallel.*)

With respect to claims 14, 25 (*Fig 1: 2, 4, 7 semiconductor integrate together with a wavelength filter*) shows the semiconductor laser is integrated to a device together with a field-absorption type semiconductor optical modulator.

With respect to claims 15, 26 Nasu '997 shows a second temperature controller which controls a temperature of said unit independently of a temperature of said semiconductor laser (*Fig 2: 21, 16 first/second peltiers*).

With respect to claim 16, 27 Nasu '997 shows a first substrate on which on which said semiconductor laser and said temperature controller are mounted, and a second substrate on which said unit and said second temperature controller are mounted (*Fig 2:*

*19, 15 first/second substrate in which first/second temperature controller are mounted).*

With respect to claim 17, 28 Nasu '997 shows wherein said unit further includes a device collimating said laser beams irradiated from said semiconductor laser, into parallel beams, wherein said first light-receiver receives a part of said parallel beams, and said wavelength-filter receives a part of said parallel beams (*Fig 1: 2,13,7 collimating lens collimating beam from semi. Laser #2 into parallel beams optical filter #7 receiving a part of parallel beam, and into a PD 5*).

With respect to claim 24, Nasu '997 shows a module for stabilizing a wavelength of an optical signal in optical communication (*ABSTRACT; Fig 1*), comprising: (a) a semiconductor laser irradiating signal laser beams (*Fig 1: 2*); (b) a temperature controller which controls a temperature of said semiconductor laser (*Fig 2: 21, 16*); (c) a beam splitter which splits said signal laser beams (*Fig 1: 4 beam splitter prism*), and (d) a unit which receives a part of said signal laser beams having been split by said beam splitter, and stabilizes a wavelength of the received signal laser beams (*Fig 1: 8 a unit receives part of laser beam having been split by splitter #4*), wherein said unit is comprised: (c1) a first light-receiver receiving a part of laser beams irradiated from a semiconductor laser (*Fig 1: 6 first PD receiving a part of semi laser beam*); (c2) a wavelength-filter receiving a part of said laser beams (*Fig 1: 7 wavelength-filter*), and having a transmittance varying in accordance with a wavelength of the received laser beams; and (c3) a second light-receiver receiving laser beams having passed through said wavelength-filter (*Fig 1: 5 second PD receiving 2<sup>nd</sup> light through filter*), wherein said first light-receiver has a first

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edge, and said second light-receiver has a second edge located in the vicinity of said first edge, and said first edge has a first linear portion and said second edge has a second linear portion extending in parallel with said first linear portion (*Fig 1,8b: 5, 6 the first/second PD have a first/second linear portion/edge, and locate in parallel.*)

With respect to claim 34, it is inherent that the PD has light-receiver component integrate as a part of a photodetector.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or non-obviousness.
5. Claims 8, 19, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nasu et al. (US 6667997).

With respect to claim 8, 19, 30 Nasu '997 shows and discloses the above. The claim further require the parallel beams have a  $\pm 2$  degrees of parallelization or smaller.



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It is inherently obvious to one skill in the art that parallel beams have little or minimal deviation. It has been held that where the general conditions of a claim are disclosed in the prior art, disclosing the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen

